

Conspectus of *Cryptolepis* R. Br. (Asclepiadaceae: Periplocoideae) in Malesia¹

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Summary

Forster Paul I. (1993). Conspectus of *Cryptolepis* R. Br. (Asclepiadaceae: Periplocoideae) in Malesia. *Austrobaileya* 4(1): 67–73. The genus *Cryptolepis* R. Br. comprises seven species in Malesia. The taxonomic status of the genus *Phyllanthera* Blume is assessed and it is reduced to subgeneric status under *Cryptolepis* containing those species that lack lobes in the corolla throat. New combinations are made in *Cryptolepis* for *Phyllanthera bifida* Blume and *P. perakensis* Gamble and the latter is lectotypified. *Cryptolepis* in Malesia comprises *C. bifida* (Blume) P.I. Forster, *C. lancifolia* P.I. Forster, *C. javanica* (Blume) Blume, *C. multinervosa* P.I. Forster *sp. nov.*, *C. nymanii* (K. Schum.) P.I. Forster, *C. papillata* P.I. Forster and *C. perakensis* (Gamble) P.I. Forster. A key to these taxa is provided.

Key words: Asclepiadaceae; *Cryptolepis* – Malesia, *Cryptolepis bifida*, *Cryptolepis multinervosa*, *Cryptolepis perakensis*.

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Introduction

The status of several genera in the Periplocoideae allied to *Cryptolepis* Blume has previously been reviewed and several reduced to synonymy of that genus (Forster 1990). Discovery of still further undescribed specific taxa in the group (Forster 1991 and subsequent research), has prompted an examination of the status of *Phyllanthera* Blume.

Phyllanthera has had two species referred to it, the type species *P. bifida* Blume from Java (Blume 1826, 1849) and the Malesian *P. perakensis* Gamble (King & Gamble 1907). Both species are woody lianes and have flowers with rotate, densely papillate corollas without free lobes in the throat or any sort of corolline corona. Although Blume (1849) depicted *P. bifida* with an urceolate corolla, this plate was evidently drawn from budding material, as mature flowers are typically rotate. Both of these taxa are very closely allied to *Cryptolepis papillata* P.I. Forster and *C. multinervosa* P.I. Forster, but differ in leaf venation and shape, and the size and shape of the various floral parts.

I have previously advocated a broad circumscription of *Cryptolepis* (Forster 1990) wherein the corolla may or may not have discrete lobes in the tube, and various forms of a corolline corona may be present. Both species of *Phyllanthera* fall within this circumscription and require transfer to *Cryptolepis* as effected in this paper. Those species of *Cryptolepis* that lack discrete corolline coronal lobes in the corolla throat are recognised as belonging to *Cryptolepis* subgenus *Phyllanthera* (Blume) P.I. Forster.

Materials and methods

This study is based on herbarium collections at A, BO, BRI, BSIP, K, L, LAE, CANB, NY and SING. Descriptions of species listed, but not described in this paper can be found in Backer and Bakhuizen van den Brink (1965) and Forster (1990, 1991).

Taxonomic treatment

***Cryptolepis* R. Br., Asclepiadeae 58 (1810).**
Type: *Cryptolepis buchananii* Roemer & Schultes

R. Br., Mem. Wern. Nat. Hist. Soc. 1: 69 (1811); Benth. in Benth. & J.D. Hook., Gen. pl. 2: 740 (1876); J.D. Hook., Fl. Brit. India 4: 5–6 (1885); Bruce, Kew Bull. 1946: 46–48 (1946); Bullock, Kew

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Bull. 1955: 279–282 (1955); Backer & Bakhuizen van den Brink, Fl. Java 3: 250 (1965); Ali, Fl. Pakistan 150: 54–55 (1981); P.I. Forster, Austrobaileya 3: 274 (1990).

Phyllanthera Blume, Bijdr. 1048 (1826), **syn. nov.** **Type:** *Phyllanthera bifida* Blume

Decne in DC., Prodr. 8: 497 (1844); Blume, Mus. bot. 1: 125–126 (1850); K. Schum., Nat. Pflanzenfam. 4(2): 212 (1895).

Leposma Blume, Bijdr. 1049 (1826). **Type:** *Leposma javanica* Blume

Lepistoma Blume, Fl. Javæ 7 (1828), nom. illeg. **Type:** *Leposma javanica* Blume (= *Lepistoma javanica* (Blume) Blume).

Decne in DC., Prodr. 8: 497 (1844).

Ectadiopsis Benth. in Benth. & J.D. Hook., Gen. pl. 2: 741 (1876). **Type:** *Ectadium oblongifolium* Meisn. (= *Ectadiopsis oblongifolia* (Meisn.) Schltr.), (fide Bullock 1955).

Bullock, Kew Bull. 1955: 267–279 (1955).

Gymnolaema Benth. in Benth. & J.D. Hook., Gen. pl. 2: 740 (1876). **Type:** *Gymnolaema newii* Benth.

N.E. Br. in Dyer, Fl. trop. Afr. 4(1): 241 (1902).

Batesanthus N.E. Br. in J.D. Hook., Icon. pl. t. 2500 (1896). **Type:** *Batesanthus purpureus* N.E. Br.

N.E. Br. in Dyer, Fl. trop. Afr. 4(1): 253–254 (1902).

Stomatostemma N.E. Br. in Dyer, Fl. trop. Afr. 4(1): 252 (1902). **Type:** *Cryptolepis monteiroae* N.E. Br. (= *Stomatostemma monteiroae* (Oliver) N.E. Br.)

Streptomanes K. Schum. in K. Schum. & Lauterb., Nachträge Fl. Schutzgeb. Südsee 352 (1905). **Type:** *S. nymanii* K. Schum.

Perennial shrubs, lianes or scramblers with white latex, usually glabrous; indumentum sparse if present. Leaves petiolate; lamina linear-lanceolate, lanceolate, ovate, elliptic or oblong; petiole grooved; colleters absent at lamina base. Inflorescence a much branched extra-axillary cyme bearing 1–many fascicles of 1–many flowers. Sepals usually with basal colleters. Corolla salverform, campanulate or rotate; tube cylindrical-urceolate; lobes dextrorse in bud, patent at anthesis. Corolline corona comprised of 5 free lobes opposite the sinuses of adjacent petals or at the top of the corolla tube, or a collar around the filament bases or an annulus on the corolla tube. Staminal corona absent. Stamens 5, inserted slightly above the base of the corolla tube, alternate with the corolla lobes, connate or closely adnate at base but free for most of length. Anthers dehiscing longitudinally, with apical appendages which are sometimes elongated and twisted together. Translators spatulate. Pollen granular, organised in tetrads and loosely cohering into masses appressed against the broadened upper ends of the translators. Ovaries free, glabrous. Style-head conical, pentagonal in transverse section. Follicle widely divaricate, fusiform to fusiform-ovoid, smooth; seeds comose.

10–20 species in Africa, Asia, Malesia and Australia.

Key to Subgenera

- Corolla with discrete lobes in throat **Cryptolepis** subgenus **Cryptolepis**
 Corolla without discrete lobes in throat **Cryptolepis** subgenus **Phyllanthera**

Key to Malesian species of *Cryptolepis*

1. Corolla with 5 small rounded lobes in throat 1. *C. javanica*
Corolla without rounded lobes in throat 2
2. Leaf lamina linear to linear-lanceolate 7. *C. lancifolia*
Leaf lamina otherwise 3
3. Corolla lobes not papillate 5. *C. nymanii*
Corolla lobes papillate 4
4. Secondary veins 13–15 per side of midrib in leaf lamina 4. *C. perakensis*
Secondary veins 22–38 per side of midrib in leaf lamina 5
5. Secondary veins 22–25 per side of midrib in leaf lamina 2. *C. bifida*
Secondary veins 27–38 per side of midrib in leaf lamina 6
6. Secondary veins 27–30 per side of midrib in leaf lamina 6. *C. papillata*
Secondary veins 34–38 per side of midrib in leaf lamina 3. *C. multinervosa*

Cryptolepis subgenus *Cryptolepis*

Corolla with discrete lobes in throat.

1. *Cryptolepis javanica* (Blume) Blume, Mus. bot. 2: 146 (1850); *Leposma javanica* Blume, Bijdr. 1049 (1826); *Lepistoma javanica* (Blume) Blume, Fl. Javae 7 (1828). **Type:** Java, Kalkrotsen, Koeripan, Blume (holo: L! (L898166-149); iso: BO! (BO109443)).

Description: see Backer and Bakhuizen van den Brink (1965).

- Cryptolepis* subgenus *Phyllanthera* (Blume) P.I. Forster, **comb. et stat. nov.**

Phyllanthera Blume, Bijdr. 1048 (1826).
Type: *Phyllanthera bifida* Blume.

Corolla without lobes in throat.

2. *Cryptolepis bifida* (Blume) P.I. Forster, **comb. nov.**

Phyllanthera bifida Blume, Bijdr. 1048 (1826). **Type:** Java, Salak, Blume 1837 (holo: L! (L898169-170); iso: BO! (BO112471)).

Blume, Mus. bot. 1: 126, t. 22 (1849);
Back. & Bakh.f., Fl. Java 3: 248 (1965).

Description: see Backer and Bakhuizen van den Brink (1965).

Specimens examined: Java. WSW of Buitenzorg, forest complex Nanggseng, Mt Menapa, Dec 1940, *van Steenis* 17350 (BO); Mt Megamendoeng, E of Buitenzorg, Dec 1940, *de Voogd* (BO112467); Res. Praenger, Jan 1910, *Winckel* 25B (BO); ditto, Sep 1917, *Winckel* 999B (BO); Res. Preanger, Tjadas Malang, Apr 1918, *Winckel* 128B (BO); ditto, Mar 1923, *Winckel* 1315B (BO); ditto, Apr 1923, *Winckel* 1250B (BO); Galseyon Gebeyte, Nov 1910, *Docters van Leeuwen-Reijnvaan* 3051 (BO).

Distribution: *C. bifida* appears to be restricted to Java and has apparently not been collected since 1940.

Notes: Van Steenis (1954) recorded *Phyllanthera bifida* as a new record from New Guinea based on *Docters van Leeuwen* 10432 (BO) from the Rouffaer River in Irian Jaya. This collection has leaves and fruit only on the BO sheet, and leaves and one bud on the K sheet. I doubt whether the specimen is conspecific with the type of *Phyllanthera bifida* as the former has more prominent secondary venation in the leaf lamina. Until flowering material of the Rouffaer River plant can be collected, it should be considered to be of uncertain status and *Cryptolepis bifida* regarded as occurring in Malesia west of New Guinea.

3. *Cryptolepis multinervosa* P.I. Forster **sp. nov.** *Cryptolepi papillatae* P.I. Forster affinis a qua lamina folii nervis utroque costae latere 34–38, lobis corollae lanceolatis 13–14 mm longis 2.5–3 mm latis. **Typus:** Papua New Guinea, SOUTHERN HIGHLANDS PROVINCE: near Waro airstrip, 20 km SSW of Kutubu, 6°31'S, 143°10'E, 14 October 1973, *M. Jacobs* 9287 (holo: L! (2 sheets); iso: CANB!, LAE!).

Woody liane; latex colour unknown. Stems cylindrical, up to several m long, glabrous when young, lenticellate when old; internodes up to 110 mm long and 3 mm diameter. Leaves petiolate; lamina lanceolate-ovate to elliptic-oblong, up to 110 mm long and 30 mm wide, discolorous, glabrous; upper surface dark green, venation obscure; lower surface pale green, secondary veins 34–38 per side and at 90° to midrib, tertiary venation reticulate but barely visible; tip long acuminate; base truncate to rounded; petiole 5–8 mm long, c. 1 mm diameter, grooved along top, glabrous. Cymes 40–60 mm long, with 1–several fascicles of flowers; peduncle 5–7 mm long, c. 0.5 mm diameter, glabrous; bracts lanceolate, 0.8–1.2 mm long, 0.3–0.4 mm wide, glabrous. Flowers c. 2 mm long and 30 mm diameter; pedicels 8–11 mm long and c. 0.3 mm diameter, glabrous. Sepals lanceolate, 1.4–1.5 mm long, c. 0.5 mm wide, glabrous. Corolla primarily yellow; tube much reduced, corolline corona absent; lobes lanceolate, 13–14 mm long, 2.5–3 mm wide, with purple-red blotch in centre, and covered in dense papillae to 1 mm long. Gynostegium c. 1.5 mm long and 1.5 mm diameter; filaments c. 0.5 mm long, 0.4 mm diameter at base and 0.2 mm diameter at top; anthers c. 0.7 mm long and 0.6 mm diameter, with an oblong, acute appendage c. 0.5 mm long. Style-head c. 0.7 mm diameter; stalk c. 0.7 mm long. Translators not seen. Fruit and seed not seen. **Fig. 1.**

Specimens examined: Papua New Guinea, SOUTHERN HIGHLANDS PROVINCE: Tage, Lake Kutubu, Aug 1977, *Conn & Kairo* 482 (A, CANB, K).

Distribution and habitat: Known only from the vicinity of Lake Kutubu in Papua New Guinea. Plants grow in seasonally flooded primary for-

est dominated by *Araucaria* and *Nothofagus*, on limestone.

Notes: *C. multinervosa* is closely allied to *C. papillata* but differs most noticeably in the higher number of secondary lateral veins in the leaf and the lanceolate corolla lobes.

Etymology: The specific epithet *multinervosa* alludes to the high number of secondary veins per side of the midrib of the leaf in this species in comparison to those in other Malesian species.

4. *Cryptolepis perakensis* (Gamble) P.I. Forster, **comb. nov.** *Phyllanthera perakensis* Gamble in King & Gamble, J. Asiatic Soc. Bengal 74: 508 (1907). **Type:** Malaysia: Perak, Larut, February 1885, *King's Collector* 7314 (lecto (here designated): K (photo at BRI!); isolecto: BM (photo at BRI!); Perak, Larut, August 1881, *Dr King's Collector* 2181 (lectopara: K (photo at BRI!)).

Woody liane; latex colour unknown. Stems up to several m long, cylindrical to somewhat ridged, glabrous when young, lenticellate with age; internodes up to 140 mm long and 2 mm diameter. Leaves petiolate; lamina elliptic to elliptic-oblong, up to 90 mm long and 40 mm diameter, discolorous, glabrous; upper surface dark green, venation obscure; lower surface pale green, secondary veins 13–15 per side of midrib, tertiary venation obscure; tip long acuminate; base cuneate; petiole 6–9 mm long, 0.8–1 mm diameter, glabrous, grooved along top. Cymes up to 20 mm long, 1–several somewhat racemiform fascicles of flowers; peduncle 6–7 mm long, c. 0.3 mm diameter, glabrous; bracts lanceolate, 1–1.2 mm long, 0.8–1 mm wide, glabrous. Flowers c. 5 mm long, 14–15 mm diameter; pedicels 7–10 mm long, c. 0.4 mm diameter, glabrous. Sepals lanceolate, c. 1.5 mm long and 0.7 mm wide, with sparse trichomes. Corolla rotate, brown-yellow; tube absent, corolline corona absent; lobes lanceolate, 8–9 mm long, c. 5 mm wide, above with sparse papillae to 0.5 mm long, below with shorter scattered papillae. Gynostegium c. 2.1 mm long and 2.4 mm diameter; filaments c. 1.5 mm long and 0.3 mm

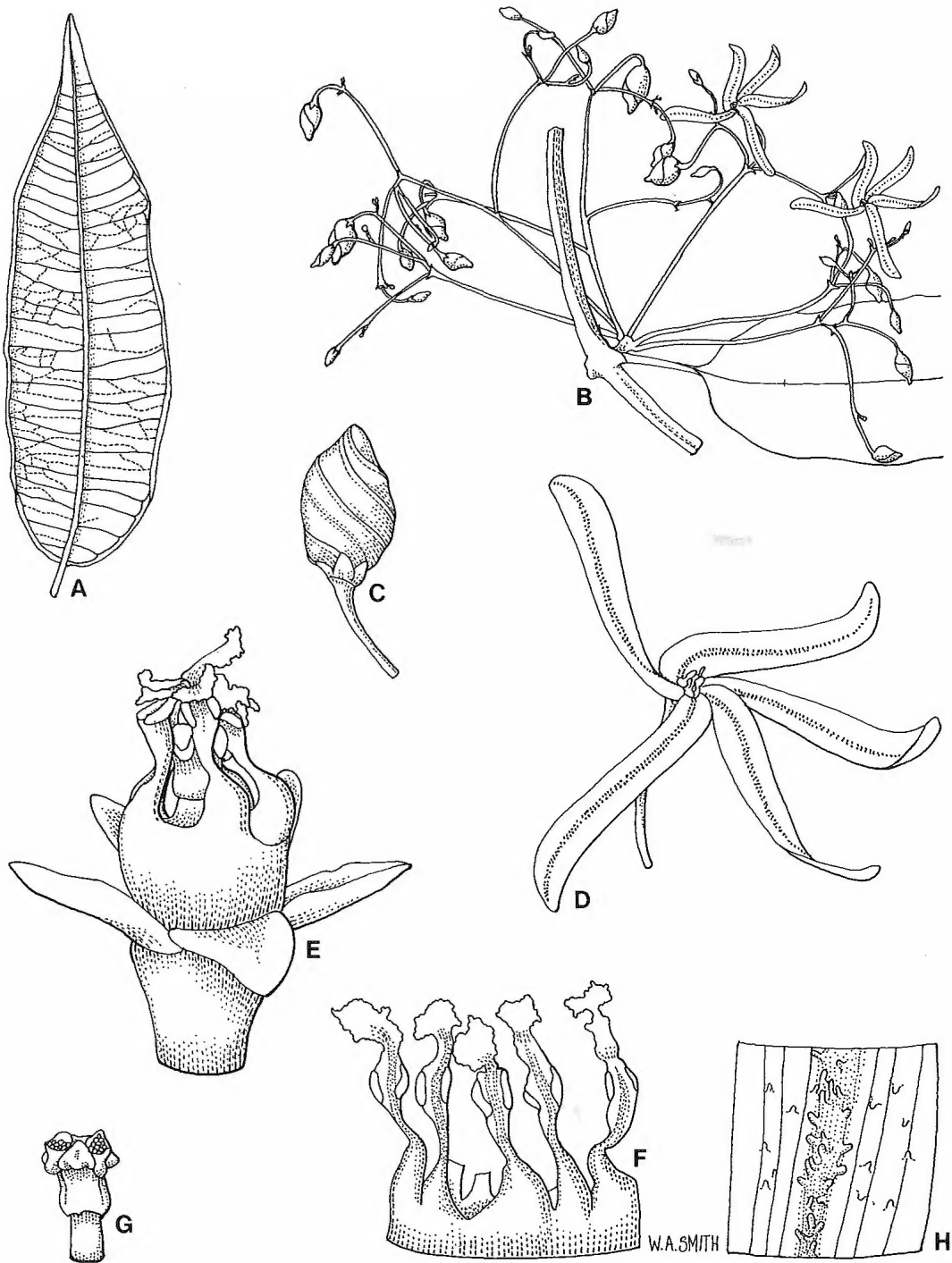


Fig. 1. *Cryptolepis multinervosa* P.I. Forster: A. leaf $\times 1$. B. node with inflorescence $\times 1$. C. bud $\times 3$. D. flower $\times 3$. E. side view of gynostegium $\times 5$. F. anthers viewed externally $\times 15$. G. anther viewed from top $\times 15$. H. papillate corolla surface $\times 15$. All from material of the holotype. Del. W. Smith.

diameter; anthers 1–1.1 mm long, c. 0.8 mm wide at base; appendage lanceolate and c. 0.5 mm long. Style head c. 1 mm long and 1.3 mm diameter; stalk c. 1.5 mm long and 0.6 mm diameter. Translators c. 1.2 mm long; viscidium c. 0.3 mm long and 0.3 mm wide; stipe c. 0.5 mm long; pollen carrier 0.3–0.4 mm long, 0.6–0.7 mm wide. Pollen in spherical tetrads, 0.3–0.32 mm diameter. Fruit and seeds not seen.

Specimens examined: **Indonesia. Sumatera:** Tanang Taloe, Jul 1907, *Bünnemeijer* 1166 (BO); Brani Afd Agam, Jul 1918, *Bünnemeijer* 3340 (BO); Atjeh, Gajolanden, Mar 1937, *van Steenis* 10099 (BO); Gunung leuser nature Reserve, Atjeh. Ketambe, valley of Lau Atlas, near tributary of lau Ketambe, c. 35 km NW of Kutatjane, May 1972, *de Wilde* 12437 & *de Wilde-Duyffer* (BO). **Irian Jaya:** Bernhard bivak, Jul 1938, *Meijer Drees* 413 (BO); Wondiwoi Mountains, Wandammen Peninsula, 2°42'S, 134°40'E, Mar 1962, *Schram* BW13323 (CANB, LAE). **Papua New Guinea.** WEST SEPIK PROVINCE: Meinat flood plain, N slopes Bewani Mountains, 11 km SSW of Bewani, 3°08'S, 141°08'E, Sep 1982, *Wiakabu et al.* LAE50601 (BRI, CANB, K).

Distribution and habitat: Malaysia, Indonesia (Sumatera and Irian Jaya) and Papua New Guinea. Plants grow on alluvium in rainforests up to 1100 m altitude.

Notes: Gamble cited six syntypes for *P. perakensis* – Wray 2407, 3005, *Scortechini s.n.* and *King's Collector* 2059, 2181, 7314. Dr P.S. Short (MEL) was able to find only four of these collections at K. These collections appear to represent two separate species, with *King's Collector* 7314 & 2181 belonging to one and *Scortechini* (recd. 27 Apr 1911) and *King's Collector* 2059 belonging to another. The latter two collections have no specific locality of collection, with *King's Collector* 2059 being seeds only. *King's Collector* 7314 is selected as lectotype as it is the best flowering collection and is in closest agreement with the protologue.

5. *Cryptolepis nymanii* (K. Schum.) P.I. Forster, Austrobaileya 3: 275 (1990); *Streptomanes nymanii* K. Schum. in K. Schum. & Lauterb., Nachträge Fl. Schutzgeb. Südsee 353 (1905). **Type: Papua New Guinea. MADANG PROVINCE: Stephansort, *Nyman* 1020 (iso: UPS!).**

Description: see Forster (1990).

6. *Cryptolepis papillata* P.I. Forster, Austrobaileya 3: 277 (1990). **Type: Papua New Guinea. MOROBE PROVINCE: Partep [Patep] Creek, Lae-Wau road, Bulolo Valley, September 1955, *J.S. Womersley* NGF7821 (holo: BRI!; iso: BO!, K!, L!).**

Description: see Forster (1990).

7. *Cryptolepis lancifolia* P.I. Forster, Blumea 35: 381 (1991). **Type: Irian Jaya. Okwailinkan River headwaters, 5°02'S, 140°55'E, 17 August 1967, *Ridsdale et al.* NGF31999 (holo: L!; iso: LAE!).**

Description: see Forster (1991).

Additional specimens examined: **Papua New Guinea.** WEST SEPIK PROVINCE: Road leading from base camp to drilling camp, Frieda River, 4°40'S, 142°00'E, May 1978, *Kerenga & Lelean* LAE74226 (LAE). SOUTHERN HIGHLANDS PROVINCE: near Tage, Lake Kutubu, *Schodde* 2259 (LAE).

Distribution: Irian Jaya and West Sepik Province in Papua New Guinea.

Notes: When described, this species was known only from the type collection (Forster 1991). The additional collections now to hand appear to be of this species but have smaller flowers than first described with corolla lobes 8–10 mm long and with fewer papillae.

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References

- BACKER, C.A. & BAKHUIZEN VAN DEN BRINK, R.C. (1965). Asclepiadaceae. In *Flora of Java* 2: 244–274. Groningen: N.V.P. Noordhoff.
- BLUME, C.L. (1826). *Bijdragen tot de floravan Nedelandsch Indie*. Batavia ter Lands Drukkerij.
- (1849). *Museum Botanicum Lugduno-Batavum*. Leiden: E.J. Brill.
- FORSTER, P.I. (1990). Notes on Asclepiadaceae, 2. *Austrobaileya* 3: 273–289.
- (1991). *Cryptolepis lancifolia* (Asclepiadaceae: Periplocoideae), a new species from Irian Jaya. *Blumea* 35: 381–383.
- KING, G. & GAMBLE, J.S. (1907). Materials for a Flora of the Malayan Peninsula No. 16–19. *Journal and Proceedings of the Asiatic Society of Bengal* 74: 387–625.
- VAN STEENIS, C.G.G.J. (1954). Miscellaneous botanical notes VI. *Blumea* 7: 595–598.